

A LIST OF CALIFORNIA APHIDIDÆ.

BY WARREN T. CLARKE, BERKELEY, CALIF.

Our knowledge of the group Aphididæ in California has been limited in the past to certain forms that were of economic importance in their relations to cultivated crops. No systematic list of these interesting insects has heretofore been attempted in this region, and this has not been due to any lack of material, for the varying conditions of climate here seem to be particularly favorable to them.

In Hunter's list of the Aphididæ of North America (Bull. No. 60, Iowa Ag. Ex. Sta., 1901) we find nine forms that may be considered as reported from California. Only five of these forms are directly referred to this State, while the other four are stated to be found, as in the case of *Nectarophora avenæ*, Fabr., "throughout the United States." One of the five forms directly referred to the State is *Aphis mali*, Fabr. The writer is doubtful of the occurrence of *mali* here, and believes that other species have been confused with it, and therefore does not include it as a California form. With this exception the following list is made up from the reported Aphididæ of California and from the writer's own collections in the State during the past eighteen months.

Forty-three species are listed, including ten new species. This number does not by any means exhaust the group so far as this State is concerned, as it represents but few localities, yet it is believed that the presentation of the list at this time is desirable, in that it may stimulate further study of the group by other observers.

TABLE OF GENERA.

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| A. | Third discoidal vein wanting | Phylloxera. |
| AA. | " " " simple | Pemphigus. |
| AAA. | " " " one-branched | Schizoneura. |
| AAAA. | " " " two-branched. | |
| B. | Antennæ five-jointed | Lachnus. |
| BB | Antennæ seven-jointed. | |
| C. | Style long. | |
| D. | Frontal tubercles toothed internally | Phorodon. |
| DD. | Frontal tubercles not toothed internally. | |
| E. | Frontal tubercles approximate | Nectarophora. |
| EE. | Frontal tubercles distant | Myzus. |
| CC. | Style short. | |

F. Honey tubes long.

G. Antennæ on frontal tubercles Rhopalosiphum.

GG. Antennæ not on frontal tubercles.

H. Honey tubes clavate Siphocoryne.

HH. Honey tubes cylindrical.

I. Body long Hyalopterus.

II. Body short Aphis.

FF. Honey tubes short.

J. Antennæ shorter than body . . . Chaitophorus.

JJ. Antennæ longer than body.

K. Honey tubes longer than

broad Drephanosiphum.

KK. Honey tubes shorter than

broad Callipterus.

PHYLLOXERA.—*Vastatrix*, Planchon ; *Vitis vinifera* ; California.

PEMPHIGUS.—Stigma more than twice as long as broad, *populicaulis* ; less than twice as long as broad, *betæ*.

Populicaulis, Fitch ; cottonwood and poplar ; Fresno, Berkeley, Rumsey.

Betæ, Doane ; sugar-beet, Canaigre (*Rumex hymenosepalous*) ; red dock ; Berkeley, Placer County, Palo Alto.

While these two forms of Pemphigus are reported as separate species, it is the opinion of the writer that it will be found that one is a migrant form of the other. I have noted *betæ* to be extremely prevalent on sugar-beets planted near cottonwoods infested with *populicaulis*.

SCHIZONEURA—Abdomen chocolate-brown, *lanigera* ; pale green, *pinicola* ; black, *querci* ; lilac brown, *Americana*.

The colour effect is best obtained by bathing the fresh specimens for a short time in 95% alcohol.

Lanigera, Haus. ; apple ; throughout the State.

Pinicola, Thos. ; Pine (*P. radiata*) ; Berkeley, Palo Alto.

Querci, Fitch ; various oaks ; Berkeley.

Americana, Riley ; elm ; Berkeley, Newcastle.

LACHNUS.—*Alnifolie*, Fitch ; alder (*Alnus*, sp.) ; Berkeley, Colfax.

CHAITOPHORUS.—*Viminalis*, Monell ; willow ; Newcastle, Watsonville.

CALLIPTERUS —

A. Body with dorsal setæ.

B. Body less than twice as long as broad.

- C. Colour very palehyalinus.
 CC. Colour dark yellowcoryli.
 BB. Body more than twice as long as broad.
 D. Four rows of setiferous tubercles on back of
 abdomen castaneæ.
 DD. Setiferous tubercles not in rows arundicolens.
 AA. Body without dorsal setæ.
 E. Seventh joint of antennæ shorter than sixth caryæ.
 EE. Seventh joint of antennæ longer than sixth betulæcolens.
Caryæ, Monell ; black walnut ; Berkeley.
Betulæcolens, Fitch ; birch ; Berkeley.
Castaneæ, Fitch ; chestnut ; Berkeley.

Arundicolens, n. sp. — Apterous viviparous female.

Length of body, 1.54 mm.; width 69 mm. Length of joints of antennæ ; III., .77 mm.; IV., .50 mm.; V., .54 mm.; VI., .27 mm.; VII., .27 mm. Body setiferous ; general colour light lemon-yellow to darker yellow. Nectaries reduced to tubercles. Cauda wart-like. Rostrum reaching to second coxæ. Antennal joints III., IV. and V. black at outer ends. Tarsi dusky. Eyes red-brown.

Alate viviparous female.

Length of body, 2.19 mm.; width, .81 mm. Expanse of wings from tip to tip, 7.19 mm. Length of joints of antennæ : III., 1.04 mm.; IV., .58 mm.; V., .61 mm.; VI., .35 mm.; VII., .35 mm. General colour of body light lemon-yellow. Wings hyaline ; veins and stigma greenish. Cauda short, tip black. Nectaries reduced to tubercles. Tarsi dusky. Eyes red. Sixth antennal joint dusky ; Vth and IVth black at outer end ; IIIrd ringed with black one-third distance from joint II. and at outer end.

Small colonies, and also distributed singly on under sides of leaves of bamboo (*Arundo*, sp.), Berkeley.

Hyalinus, Monell ; oak (*Quercus imbricata*) ; Berkeley.

Coryli, Gœtze ; hazelnut (*Corylus*, sp.) ; Berkeley.

DREPHANOSIPHUM.—*Acerifolii*, Thos. ; live oak ; Berkeley.

HYALOPTERUS.—*Arundinis*, Fabr. ; apricot ; Berkeley.

APHIS.—

A. Antennæ not more than half the length of body.

B. Honey tubes reaching not quite half way to tip of abdomen.

C. Honey tubes red-brown Alamedensis.

CC. Honey tubes yellow calendulicola.

CCC. Honey tubes black.

D. Body less than twice as long as broad *persicæ-niger*.

DD. Body more than twice as long as broad *maidis*.

BB. Honey tubes reaching more than half way to tip of abdomen.

E. Cauda more than twice as wide at base as at tip (conical) *mori*.

EE. Cauda about as wide at base as at tip (filiform) *œnothææ*.

AA. Antennæ three-fourths or more length of body.

BBB. Honey tubes reaching beyond tip of abdomen.

F. Cauda inconspicuous *sorbi*.

FF. Cauda evident.

G. Cauda about as wide at tip as at base (filiform) *gossypii*.

GG. Cauda more than twice as wide at tip as at base (conical) *œnothi*.

BBBB. Honey tubes not reaching to tip of abdomen.

H. Cauda inconspicuous *brassicæ*.

HH. Cauda evident *cratægi*.

Brassicæ, Linn.; throughout the State on various cruciferæ.

Calendulicola, Monell; marigold; Berkeley.

Cratægi, Monell; hawthorn (*Cratægus*, sp.); Berkeley.

Gossypii, Glover; shepherd's-purse, watermelon; Newcastle, Wat-sonville.

œnothi, n. sp.—Apterous viviparous female.

Length of body, 1.46 mm.; width, 1.19 mm. Length of joints of antennæ: III., .31 mm.; IV., .16 mm.; V., .16 mm.; VI., .13 mm.; VII., .27 mm. Body smooth, globular; general colour clouded yellow-brown. Nectaries reaching beyond end of body, black. Cauda conical, inconspicuous. Legs and antennæ of a uniform yellow-brown colour. Eyes black.

Alate viviparous female.

Length of body, 1.54 mm.; width, .58 mm.; expanse of wings from tip to tip, 5.58 mm. Length of joints of antennæ: III., .38 mm.; IV., .19 mm.; V., .19 mm.; VI., .15 mm.; VII., .27 mm. Colour of head and thorax jet black; abdomen clouded yellow-brown. Wings opalescent, veins dark green. Third discoidal vein obsolete at base. Cauda conical, yellow-brown in colour. Nectaries reaching beyond tip of body, black. Tibiæ yellow-brown except outer end, which is dusky. Other joints of legs dusky. Antennal joints yellow-brown. Eyes black.

Large colonies on tender tips and on blossoms of *Ceanothus integririmus*, Colfax.

Alemedensis, n. sp.—Apterous viviparous female.

Length of body, 1.27 mm.; width, .50 mm. Length of joints of antennæ: III., .15 mm.; IV., .08 mm.; V., .15 mm.; VI., .08 mm.; VII., .23 mm. Body smooth, general colour yellow-green to red-brown. Nectaries red-brown, reaching not quite half-way to tip of abdomen. Cauda conical. Eyes red.

Alate viviparous female.

Length of body, 2.31 mm.; width, .77 mm. Expanse of wings from tip to tip, 6.15 mm. Length of joints of antennæ: III., .50 mm.; IV., .31 mm.; V., .19 mm.; VI., .12 mm.; VII., .38 mm. Head and thorax black. Abdomen yellow-green to dark brown. Wings hyaline, veins yellowish. Third discoidal vein obsolete at base. Cauda conical and of same colour as rest of abdomen. Nectaries not reaching to end of body, black. Legs dusky. Antennæ dusky yellow. Eyes dark red. Flocculent masses of wax covering abdomen.

Rather large and numerous colonies on leaves of Greengage. Alameda County.

Maidis, Fitch; sorghum, corn; Berkeley, Watsonville.

Mori, n. sp.—Apterous viviparous female.

Length of body, 1.04 mm.; width, .65 mm. Length of joints of antennæ: III., .12 mm.; IV., .06 mm.; V., .06 mm.; VI., .12 mm.; VII., .15 mm. Head and thorax fuscous, abdomen dark green. Nectaries fuscous, reaching to tip of abdomen. Cauda conical. Tarsi dusky, other joints of legs yellow green. A row of six dark spots extends from the nectaries to the thorax on each side of the abdomen. Rostrum extends to middle coxæ. Eyes dark.

Alate viviparous female.

Length of body, 1.22 mm.; width, .54 mm. Expanse of wings from tip to tip, 3.77 mm. Length of joints of antennæ: III., .15 mm.; IV., .12 mm.; V., .12 mm.; VI., .08 mm.; VII., .23 mm. Head and thorax greenish-black. Abdomen yellowish-green, with two black dorsal patches. Wings hyaline, veins greenish. Stigma, long, narrow, greenish. Cauda conical, dusky. Nectaries black, reaching to tip of abdomen. Legs and antennæ dusky. Eyes black.

Found on under sides of leaves of mulberry (*Morus*, sp.), appearing in enormous numbers, and giving the attacked trees a dirty, smutty appearance.

Enotheræ, Oestl.: *Enothera bectiana*, *Epilobium*; Berkeley.

Persicæ-niger, Smith; peach, plum; Placer County.

Sorbi, Kalt; apple; Placer County.

SIPHOCORYNE.—*Fœniculi*, Pass.; sweet fennel (*F. vulgare*); Berkeley, Newcastle.

RHOPALOSIPHUM.—*Dianthi*, Schrank; English ivy; Berkeley.

MYZUS.—*Cerasi*, Fabr.; Greengage; Berkeley.

PHORODON.—*Scrophulariæ*, Thos.; *Scrophularia*, sp.; Berkeley.

Humuli, Schrank. Reported as present on hops and *Prunus domesticus*, in this State. Unknown to me.

NECTAROPHORA.—

A. Antennæ as long or longer than body.

B. Honey tubes reaching beyond tip of abdomen.

C. Honey tubes black valerianiæ.

CC. Honey tubes clouded yellow.

D. Body more than twice as long as broad.

E. Cauda more than twice as wide at base as at tip (conical) rosæ.

EE. Cauda about as wide at base as at tip (filiform). Californica.

DD. Body less than twice as long as broad.

F. Cauda more than twice as wide at base as at tip (conical) rhamni.

FF. Cauda about as wide at base as at tip (filiform) baccharidis.

BB. Honey tubes reaching to tip of abdomen.

G. Honey tubes black sonchella.

GG. Honey tubes yellow lycopersici.

AA. Antennæ shorter than body.

H. Honey tubes and cauda black citrifolii.

HH. Honey tubes and cauda clouded yellow. jasmini.

Citrifolii, Ashm.; orange; Azusa.

Jasmini, n. sp.—Apterous viviparous female.

Length of body, 1.73 mm.; width, .58 mm. Length of joints of antennæ: III., .23 mm.; IV., .23 mm.; V., .19 mm.; VI., .12 mm.; VII., .38 mm. General colour yellowish-green. Nectaries reaching beyond tip of abdomen, clouded yellow in colour, with outer ends darker. Tarsi dusky; other joints of legs light yellow. Antennal joint III. light yellow; others dusky. Rostrum reaching to third coxæ. Eyes pink.

Small colonies on under sides of leaves of jasmin. No winged specimens found. Berkeley.

Sonchella, Monell; *Sonchus*, sp. (Sow thistle); Berkeley, Palo Alto, Newcastle.

Lysopersici, n. sp.—Apterous viviparous female.

Length of body, 2.31 mm. width, .58 mm. Length of joints of antennæ: III., .65 mm.; IV., .54 mm.; V., .54 mm.; VI., .15 mm.; VII., .77 mm. General colour green. Nectaries yellow, occasionally dusky at outer end, reaching to tip of abdomen. Cauda prominent, green, outlined with black. Tarsi black. Tips of tibiæ black. Rest of tibiæ and femora dusky. Eyes red

Alate viviparous female.

Length of body, 2.50 mm.; width, .96 mm. Expanse of wings from tip to tip, 8.65 mm. Length of joints of antennæ: III., .77 mm.; IV., .58 mm.; V., .58 mm.; VI., .19 mm.; VII., .77 mm. General colour green. Nectaries yellow, occasionally dusky at outer end, reaching beyond tip of abdomen. Cauda prominent. Tarsi black. Tip of femur and tibiæ black, rest of joints of legs greenish, yellow. Antennæ dusky. Wings hyaline, veins and stigma yellow-green. Third discoidal vein obsolete at base.

A handsome insect, found on tomato, generally on the blossoms, which they destroy. Occasionally found on tender leaves. Individuals isolated or in very small colonies. Berkeley.

Valerianie, n. sp.—Apterous viviparous female.

Length of body, 2.85 mm.; width, 1.15 mm. Length of joints of antennæ: III., .81 mm.; IV., .69 mm.; V., .58 mm.; VI., .19 mm.; VII., .88 mm. General colour of body yellow-brown. Nectaries black, reaching beyond tip of abdomen. Cauda prominent. Antennæ dusky. Tarsi and outer ends of femur and tibia black. Rest of joints of legs yellowish. Rostrum reaching to third coxæ and tipped with black. Eyes yellowish.

Alate viviparous female.

Length of body, 2.92 mm.; width, 1.15 mm. Expanse of wings from tip to tip, 9.61 mm. Length of joints of antennæ: III., 1.00 mm.; IV., .77 mm.; V., .65 mm.; VI., .19 mm.; VII., .96 mm. Antennæ and head, back of thorax, nectaries and outer ends of femora and tibiæ black. General colour of rest of body and legs yellow-brown. Wings greenish-yellow, veins darker. Third discoidal vein obsolete at base. Rostrum reaching to second coxæ. Cauda prominent. Nectaries reaching beyond tip of abdomen. Eyes black.

Small colonies on growing tip of valerian (*Valeriana officinalis*), Berkeley.

Rhamni, n. sp.—Apterous viviparous female.

Length of body, 1.73 mm.; width, .81 mm. Length of joints of antennæ: III, .50 mm.; IV., .38 mm.; V., .38 mm.; VI., .19 mm.; VII., .96 mm. General colour green. Nectaries greenish-yellow, reaching beyond tip of abdomen. Cauda prominent, conical. Legs and antennæ light yellow. Rostrum reaching to middle coxæ. Eyes dark red.

Small colonies on under sides of leaves of *Rhamnus Californica*. No winged specimens found. Lander.

Baccharidis, n. sp.—Apterous viviparous female.

Length of body, 1.38 mm.; width, .62 mm. Length of joints of antennæ: III., .58 mm.; IV., .27 mm.; V., .27 mm.; VI., .11 mm.; VII., .38 mm. General colour of body green. Nectaries clouded yellow, reaching well beyond tip of abdomen. Antennæ, tibiæ and tarsi dusky. Cauda prominent, filiform. Rostrum dusky, reaching to second coxæ. Eyes dark red.

Alate viviparous female.

Length of body, 2.11 mm.; width .77 mm. Expanse of wings from tip to tip, 6.92 mm. Length of joints of antennæ: III., .62 mm.; IV., .31 mm.; V., .31 mm.; VI., .15 mm.; VII., .38 mm. General colour of body green. Nectaries, tip of femora, tibiæ and tarsi black. Wings hyaline, stigma greenish, veins dusky. Cauda prominent. Nectaries reaching much beyond tip of abdomen. Eyes dark red.

Isolated individuals and small colonies on *Baccharis*, sp. Berkeley.

Rosæ, Linn. Very common on rose in many parts of the State.

Californica, n. sp.—Apterous viviparous female.

Length of body, 1.92 mm.; width, .77 mm. Length of joints of antennæ: III, .35 mm; IV., .38 mm; V., .50 mm.; VI., .19 mm.; VII., 1.08 mm. General colour green. Joints of the antennæ and the tarsi black. Rostrum reaching to second coxæ, tip black. Nectaries yellow-green, reaching beyond tip of abdomen. Eyes pale.

Small colonies on tips of new growth of willow. No winged individuals present. Newcastle.

Avenæ, Fabr. Present in the State, but unknown to me, and not included in synoptical table.